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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,101	02/28/2002	Thomas Bayerl	1764 4000-06700	2744

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EXAMINER
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CHANKONG, DOHM

ART UNIT	PAPER NUMBER
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2152

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/08/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/086,101	BAYERL ET AL.	
	Examiner	Art Unit	
	Dohm Chankong	2152	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 October 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-7,9-12,14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-7, 9-12 and 14-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1> This action is in response to Applicant's amendment and remarks, filed 10.23.2006.

Claims 1, 3, 7, 12 and 14 are amended. Claims 8 and 13 are cancelled. Claims 1, 3-7, 9-12 and 14-15 are presented for further examination.

2> This is a final rejection.

### *Response to Arguments*

3> Previous actions had indicated that Rasmussen failed to teach "storing a trial run message identifying the binary file in volatile memory." Rasmussen's active page flag was equated to the claimed trial run message. A further examination of the Rasmussen reveals that the active page flag is indeed stored in volatile memory, RAM [Figure 6b : "Reset Active Page Flag value" and "Save New Value in RAM"]. Figure 6b also discloses that the active page flag is copied from RAM and stored in Flash memory.

Rasmussen discloses that the active page flag is a conditional value which allows firmware logic to access an active page [column 6 «lines 61-63»]. Specifically, the active page flag tells the logic which of the binary files is the active file [column 5 «line 64» to column 7 «line 5» | see also column 11 «lines 1-7»].

Thus, while Rasmussen discloses that the active page flag is stored in FLASH memory, Rasmussen's figure discloses that the active page flag value is saved in RAM as well. Therefore, Rasmussen discloses storing a trial run message identifying the binary file in volatile memory.

4> With respect to the Huh reference, Applicant asserts that Huh does not teach designating software as active or inactive, teaching only designating software as valid or invalid. Applicant further asserts that Huh does not provide a flag that directs the system immediately to the active application.

It should be noted that the limitation in question is: “operating the device with the binary file and verifying proper operation of the binary file.” There is no mention of marking software as active or inactive and especially no mention of a flag that directs the system immediately to an active application. Applicant is therefore arguing limitations not present in claim 1. It should also be noted that Rasmussen discloses the functionality of marking binary files as the “current” file for a device; Huh is merely relied upon to teach the validation step (insuring the device is running properly) before files are marked as current to insure that the new files are compatible with the device.

With respect to the limitations of claim 1, the Office submits that Huh discloses both “operating the device with the binary file” [Figure 3 «item 240»: “up and running” corresponding to operating] and “verifying proper operation of the binary file” [Figure 3 «item 240» | column 5 «lines 49-65»: where if the new binary file fails to get the device up and running, the system reverts to a previously verified binary file].

The term “currently active” is present in claim 15 and, presumably, it is this feature to which Applicant’s arguments are directed. However, this term also does not refer to the function that directs the system immediately to an active application. The Office interprets Huh’s validation flag as designating the file as currently active.

Huh discloses that if the new binary file fails the validation test (failing to get the device up and running), the device can use a "prior (latest) valid (executable) version of firmware" [column 5 «lines 60-61»]. Further, Huh discloses that once marked as valid, the device is rebooted to use the new firmware [column 5 «lines 4-6»]. In other words, once validated, the new firmware replaces previous versions [column 2 «lines 64-67»]. Thus, Huh's validation flag operates to mark firmware as active or not since it replaces the previous version.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5> Claims 1, 3 and 7 are rejected under 35 U.S.C § 103(a) as being unpatentable over Rasmussen, in view of Huh, in further view of Kavanagh, U.S Patent No. 6,854,054.

6> As to claim 1, Rasmussen discloses a method for downloading a configuration file in a customer premises data communications device comprising:

receiving a configuration file in a customer premises data communications device [column 3 «lines 29-45»];

loading the binary file into flash memory [abstract];

storing a trial run message identifying the binary file in volatile memory [Figure 6b :  
“Reset Active Page Flag value” and “Save New Value in RAM”];  
rebooting the hub with the binary file [column 13 «lines 9-16»];  
designating the binary file as the current binary file for the hub [claim 1].

While Rasmussen discloses a customer premises communications device, he does not explicitly disclose a hub. However hubs are well known communications devices and one of ordinary skill in the art would have been able to modify Rasmussen to incorporate hubs (routers, modems or any other well known and ubiquitous communications device) into his invention. One would have been motivated to provide these devices so as to increase the functionality of Rasmussen’s system by enabling compatibility with a wider variety of communications devices.

Rasmussen also does not explicitly disclose operating the device with the binary file and verifying proper operation of the binary file or a soft reboot.

7> Rasmussen does imply operating the device with the new binary file [column 6 «line 61» to column 7 «line 5»]. In the same field of invention, Huh is directed towards updating firmware of network devices and utilizing multiple partitions to recover from booting or run-time errors [abstract | column 3 «lines 10-14»]. Huh expressly discloses operating the device with the binary file and verifying proper operation of the binary file [Figure 3]. Huh also discloses designating the binary file as the current binary file for the hub after verifying proper operation of the binary file [Figure 3 «items 240, 244»]. Huh’s invention provides a benefit of insuring that new software and features provided by the software run properly

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with the network device. If the network device fails to operate properly with the new software, a backup is utilized such that the network device is not effected by bad software. Thus, it would have been obvious to one of ordinary skill in the art to modify Rasmussen with Huh's testing means for the reasons stated.

8> In the same field of invention, Kavanagh is directed towards memory management for providing data storage across a reboot. Kavanagh expressly discloses soft rebooting such that data stored in volatile memory, such as RAM, is not overwritten [column 1 «lines 54-57»]. It would have been obvious to one of ordinary skill in the art to incorporate Kavanagh's teachings into Rasmussen's system. The benefits of a warm (soft) reboot are well known in the art for not entirely clearing protected portions of volatile memory. Kavanagh would improve Rasmussen by providing a means to reboot devices while maintaining the active page flag that is stored in the RAM.

9> As to claim 3, Rasmussen discloses during rebooting checking the volatile memory for the existence of a trial run message [Figure 6B : "Copy New Active Page Flag to Spare page" where : the active page flag is located in RAM | column 14 «lines 24-27» where : the active page flag points to the active page upon a subsequent re-boot of the communication device].

10> As to claim 7, Rasmussen discloses:

a nonvolatile memory having first and second memory sections as currently active [Figure 3 | Figure 6a where : active and inactive pages];

means for designating one of said first and second memory sections as currently active [Figure 3 | column 6 «line 46» to column 7 «line 5»];

means for receiving a new binary file and storing it in the memory section which is not designated as currently active [Figure 3 | column 6 «lines 1-45»];

means for rebooting said hub with the new binary file [column 6 «lines 35-45»];

means for designating the other of said first and second memory sections as currently active [Figure 4],

a volatile memory having a memory location designated for storing a trial run message [Figure 6B : "Copy New Active Page Flag to Spare page" where : the active page flag is located in RAM];

means for, upon receipt of a new binary file, storing in said volatile memory a trial run message identifying the nonvolatile memory section in which said new binary file is stored [Figure 6B : "Copy New Active Page Flag to Spare page" where : the active page flag is located in RAM | column 11 «lines 1-7» | column 14 «lines 15-27»]; and

means for, upon rebooting, checking said volatile memory for the presence of the trial run message and, if present, operating said hub with the new binary file [column 6 «line 61» to column 7 «line 5» | column 11 «lines 1-7»].

Rasmussen does not expressly disclose verifying proper operation of said new binary file or soft rebooting but see the rejection of claim 1 with respect to Huh and Kavanagh teaching these features.



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11> Claims 4, 6, 9 and 10 are rejected under 35 U.S.C § 103(a) as being unpatentable over Rasmussen, Huh and Kavanagh, in further view of Morgan et al, U.S Patent Publication No. 2002|0144187 ["Morgan"].

12> As to claim 4, Rasmussen, Huh and Kavanagh do not explicitly disclose verifying proper operation of the binary file by detecting the receipt of an acknowledgement message from an external server.

13> The "proper operation of the binary file" implies proper operation of the hub (or network device in Rasmussen's case). The receipt of an ACK from an external server implies that a test message was sent by the hub that is operating the binary file. It should be noted that there are several well known ways in the art for a network device to test or verify that it is properly running after an update/upgrade (i.e., that is, to correctly connected to the internet), such as sending out test messages or pinging a known address. Moreover the use of acknowledgement packets are ubiquitous in the art as a means for a sender to verify connection to a receiver. For example, Morgan discloses verifying network connections between network devices by sending a message and waiting for the subsequent response (ACK) [0037]. So while Rasmussen does not explicitly state how he would check if "updated versions of the firmware fail", it would have been obvious to one of ordinary skill in the art to have incorporated the ACK functionality between the update server and the client in Rasmussen's system as a means of verifying the proper operation of the new configuration file as taught by Morgan. This implementation is particularly relevant and expected in

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Rasmussen because his devices are network devices and communication to external network devices such as a server would be necessary. Such an implementation is not novel as it is a well known technique in the art.

14> As to claim 6, Rasmussen, Huh and Kavanagh do not explicitly disclose verifying proper operation of the file by detecting receipt of a domain name from an external server.

15> Morgan discloses verifying network connections of devices by pinging a DHCP server (well known in the art that pinging a DHCP server results in a domain name) [0071]. It would have been obvious to one of ordinary skill in the art to incorporate Morgan's connection testing technique into Rasmussen's system to verify that the binary file has not corrupted operations of the network device.

16> As to claims 9 and 10 as they are claims to a hub that implement the steps of the method of claims 4 and 6, they are similarly rejected for reasons set forth above.

17> Claims 5 and 11 are rejected under 35 U.S.C § 103(a) as being unpatentable over Rasmussen, Huh, Kavanagh and Morgan, in further view of an admitted prior art [see MPEP §2144.03(C)].

18> As to claims 5 and 11, Rasmussen does not explicitly disclose receiving a configuration file from an external server. However, these are obvious variations (kinds of responses) to

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claims 4 and 6 and are related more to design choice rather than patentable distinction; that is, ACKs, configuration files or domain names are variations on the response received from a server, the absence of which would signal to a client that there is a problem with a recent upgrade. The variations do not represent an inventive step over what is commonly known in the art. Therefore, Official Notice is taken that one of ordinary skill in the art would have modified Rasmussen to incorporate the use of configuration files and domain names (suggested by Synnestvedt's DHCP and TFTP server) as a means to verify the proper operation of the network device after it has been upgraded by the configuration file. Such an implementation is not novel as it is a well known technique in the art and therefore is not inventive.

19> Claim 12 is rejected under 35 U.S.C §103(a) as being unpatentable over Rasmussen, in view of Kavanagh.

20> As to claim 12, Rasmussen discloses a method comprising:

storing a message in a volatile memory across a reboot process [Figure 6B : "Copy New Active Page Flag to Spare page" where : the active page flag is located in RAM | column 11 «lines 1-7» | column 14 «lines 15-27»];

where the message is a trial run message identifying a new binary file stored in a memory location which has not been designated as the location of the currently active binary file [column 6 «line 61» to column 7 «line 5» | column 11 «lines 1-7»].

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Rasmussen does not disclose storing messages in a volatile memory across a soft reboot process.

21> In the same field of invention, Kavanagh is directed towards memory management for providing data storage across a reboot. Kavanagh expressly discloses soft rebooting such that data stored in volatile memory, such as RAM, is not overwritten [column 1 «lines 54-57»]. It would have been obvious to one of ordinary skill in the art to incorporate Kavanagh's teachings into Rasmussen's system. The functionality of a warm (soft) reboot are well known in the art for not entirely clearing protected portions of volatile memory; thus, merely storing a message in memory during a soft reboot is not inventive. Kavanagh would improve Rasmussen by providing a means to reboot devices while maintaining the active page flag that is stored in the RAM.

22> Claims 14 and 15 are rejected under 35 U.S.C §103(a) as being unpatentable over Rasmussen and Kavanagh in view of Huh.

23> As to claim 14, Rasmussen discloses the method further comprising:  
rebooting said hub [column 14 «lines 15-27»]; and  
reading said trial run message [column 14 «lines 15-27»].

Rasmussen does not expressly disclose operating said hub with said new binary file but does imply such functionality [column 6 «line 61» to column 7 «line 5»]. See rejection of claim 1, with respect to Huh teaching this feature.

24> As to claim 15, Rasmussen does disclose designating the binary file as the currently active binary file [column 4 «lines 33-35»] but does not expressly disclose verifying proper operation or designating the binary file as currently active after verifying proper operation.

25> Rasmussen discloses designating a binary file as currently active [column 6 «lines 46-61»]. Further, Huh expressly discloses after verifying proper operation of the binary file, designating a binary file as currently active [Figure 3 | column 5 «lines 4-6» where : as discussed in the response, above, Huh's validation flag essentially designates the new binary file as "currently active" ]. Huh's invention provides a benefit of insuring that new software and features provided by the software run properly with the network device. If the network device fails to operate properly with the new software, a backup is utilized such that the network device is not effected by bad software.

Thus, it would have been obvious to one of ordinary skill in the art to incorporate Huh's validation step (checking to see if the device is up and running) before Rasmussen designation step to insure that the device is running properly with the new binary file.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Arnold et al, U.S Patent No. 5,128,995;

Herh et al, U.S Patent No. 5,268,928;

Nichols, U.S Patent No. 5,781,921;

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Nagata et al, U.S Patent No. 5,787,288;

Bealkowski et al, U.S Patent No. 5,878,256;

Hutchinson et al, U.S Patent No. 5,922,072;

Deegan et al, U.S Patent No. 6,055,632;

Le et al, U.S Patent No. 6,154,838;

Firooz et al, U.S Patent No. 6,237,091;

Narayanaswamy et al, U.S Patent No. 6,275,931.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dohm Chankong whose telephone number is 571.272.3942.

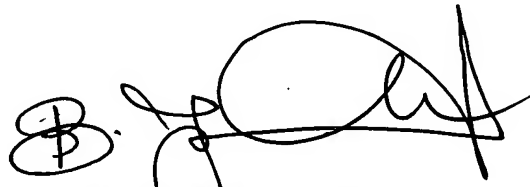
The examiner can normally be reached on Tuesday-Friday [7:30 AM to 4:30 PM].

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on 571.272.3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DC



BUNJOB JAROENCHONWANIT  
SUPERVISORY PATENT EXAMINER